What is claimed is:

1. An apparatus comprising:

a thermal mass having a cavity formed within the mass;

inlet and outlet ports formed within the thermal mass and coupling the cavity with regions outside the thermal mass; and

a folded fin located within the cavity, said folded fin defining, at least in part, a plurality of microchannels within the cavity.

2. The apparatus of claim 1 wherein the folded fin comprises aluminum.

3. The apparatus of claim 1 wherein the folded fin comprises copper.

4. The apparatus of claim 3 wherein the thermal mass comprises copper and wherein the folded fin is physically coupled to the thermal mass by brazing.

5. An apparatus comprising:

an integrated circuit (IC) die; and

a thermal mass coupled to the IC die, the thermal mass comprising:

a cavity; and

a folded fin located within the cavity, wherein the folded fin defines, at least in part, a plurality of microchannels within the cavity.

6. The apparatus of claim 5, further comprising

a solderable layer formed on the IC die; wherein the thermal mass is metallic and wherein the thermal mass is thermally and operatively coupled to IC die by the solderable layer.

7. The apparatus of claim 6, wherein the solderable layer is formed from at least one of the following metals: copper (Cu), gold (Au), nickel (Ni), aluminum (Al), titanium (Ti), tantalum (Ta), silver (Ag) and Platinum (Pt).

8. The apparatus of claim 6, wherein the solderable layer and the metallic thermal mass are made of substantially similar metals.

9. The apparatus of claim 5, wherein the thermal mass is thermally and operatively coupled to the IC die by a thermal adhesive disposed between the thermal mass and the surface of the IC die.

10. The apparatus of claim 5, wherein the thermal mass is thermally coupled to the IC die by a thermal interface material (TIM) layer.

11. The apparatus of claim 10, further comprising a substrate to which the IC die is flip-bonded.

12. The apparatus of claim 11, wherein the thermal mass is operatively coupled to the substrate via a plurality of fasteners.

13. The apparatus of claim 12, further comprising a plurality of standoffs physically coupled to the substrate and to which the plurality of fasteners are physically coupled.

14. An apparatus comprising:

an integrated circuit (IC) package, said IC package containing one or more IC dies; and

a thermal mass coupled to the IC package, the thermal mass comprising:

a cavity; and

a folded fin located within the cavity, the folded fin defining, at least in part, a plurality of microchannels within the cavity.

15. The apparatus of claim 14, further comprising:

a solderable layer formed on the IC package, wherein the thermal mass is metallic and wherein the thermal mass is thermally and operatively coupled to IC package by the solderable layer.

16. The apparatus of claim 15, wherein the solderable layer is formed from at least one of the following metals: copper (Cu), gold (Au), nickel (Ni), aluminum (Al), titanium (Ti), tantalum (Ta), silver (Ag) and Platinum (Pt).

17. The apparatus of claim 15, wherein the solderable layer and the metallic thermal mass are made of substantially similar metals.

18. The apparatus of claim 14, wherein the thermal mass is thermally and operatively coupled to the IC package by a thermal adhesive disposed between the thermal mass and the surface of the IC package.

19. The apparatus of claim 14, wherein the thermal mass is thermally coupled to the IC package by a thermal interface material (TIM) layer.

20. The apparatus of claim 19, further comprising a substrate to which the IC package is flip-bonded.

21. The apparatus of claim 20, wherein the thermal mass is operatively coupled to the substrate via a plurality of fasteners.

22. The apparatus of claim 21, further comprising a plurality of standoffs physically coupled to the substrate and to which the plurality of fasteners are physically coupled.

23. A system, comprising:

an integrated circuit (IC) die;

a folded fin microchannel heat exchanger operatively and thermally coupled to the IC die, the folded fin microchannel heat exchanger comprising:

a thermal mass having a cavity;

a folded fin located within the cavity, the folded fin defining, at least in part, a plurality of microchannels within the cavity; and

an inlet and an outlet, wherein the microchannels are fluidly coupled at one end to the inlet and at the other end to the outlet;

a pump, having an inlet and an outlet fluidly coupled to the inlet of the folded fin microchannel heat exchanger; and

a heat rejecter, having an inlet fluidly coupled to the outlet of the folded fin microchannel heat exchanger and an outlet fluidly coupled to the inlet of the pump, wherein the system employs a working fluid that transfers heat generated by the IC die to the heat rejecter using a two-phase heat exchange mechanism.

24. The system of claim 23, wherein the working fluid is water.

25. The system of claim 23, further comprising:

a solderable layer formed on the IC die, wherein the thermal mass is metallic and wherein the folded fin microchannel heat exchanger is operatively and thermally coupled to the IC die by the solderable layer.

26. The system of claim 25, wherein the solderable layer and the metallic thermal mass are made of substantially similar metals.

27. The system of claim 23, wherein the pump comprises an electro osmotic pump.

28. A system, comprising:

an integrated circuit (IC) package;

a folded fin microchannel heat exchanger operatively and thermally coupled to the IC package, the folded fin microchannel heat exchanger comprising:

a thermal mass having a cavity;

a folded fin located within the cavity, the folded fin defining, at least in part, a plurality of microchannels within the cavity; and

an inlet and an outlet, wherein the microchannels are fluidly coupled at one end to the inlet and at the other end to the outlet;

a pump, having an inlet and an outlet fluidly coupled to the inlet of the folded fin microchannel heat exchanger; and

a heat rejecter, having an inlet fluidly coupled to the outlet of the folded fin microchannel heat exchanger and an outlet fluidly coupled to the inlet of the pump, wherein the system employs a working fluid that transfers heat generated by the IC die to the heat rejecter using a two-phase heat exchange mechanism.

29. The system of claim 28, wherein the working fluid is water.

30. The system of claim 28, further comprising:

a solderable layer formed on the IC package, wherein the thermal mass is metallic and wherein the folded fin microchannel heat exchanger is operatively and thermally coupled to the IC package by the solderable layer.

31. The system of claim 30, wherein the solderable layer and the metallic thermal mass are made of substantially similar metals

32. The system of claim 28, wherein the pump comprises an electro osmotic pump.

33. A system comprising:
an integrated circuit (IC) die;
a network interface;
an antenna coupled to the network interface;
a bus, said bus coupling the IC die to the network interface; and
a thermal mass coupled to the IC die, the thermal mass comprising:
a cavity; and
a folded fin located within the cavity, wherein the folded fin defines, at least in part, a plurality of microchannels within the cavity.

34. The system of claim 33, further comprising
a solderable layer formed on the IC die; wherein the thermal mass is metallic and wherein the thermal mass is thermally and operatively coupled to IC die by the solderable layer.

35. The system of claim 34, wherein the solderable layer is formed from at least one of the following metals: copper (Cu), gold (Au), nickel (Ni), aluminum (Al), titanium (Ti), tantalum (Ta), silver (Ag) and Platinum (Pt).

36. The apparatus of claim 34, wherein the solderable layer and the metallic thermal mass are made of substantially similar metals.

37. The apparatus of claim 33, wherein the thermal mass is thermally and operatively coupled to the IC die by a thermal adhesive disposed between the thermal mass and the surface of the IC die.

38. The apparatus of claim 33, wherein the thermal mass is thermally coupled to the IC die by a thermal interface material (TIM) layer.

39. The apparatus of claim 38, further comprising a substrate to which the IC die is flip-bonded.

40. The apparatus of claim 39, wherein the thermal mass is operatively coupled to the substrate via a plurality of fasteners.

41. The apparatus of claim 40, further comprising a plurality of standoffs physically coupled to the substrate and to which the plurality of fasteners are physically coupled.

42. A system comprising:

an integrated circuit (IC) package, said IC package containing one or more IC dies;

a network interface;

an antenna coupled to the network interface;

a bus, said bus coupling the IC package to the network interface; and

a thermal mass coupled to the IC package, the thermal mass comprising:

a cavity; and

a folded fin located within the cavity, wherein the folded fin defines, at least in part, a plurality of microchannels within the cavity.

43. The system of claim 42, further comprising

a solderable layer formed on the IC package; wherein the thermal mass is metallic and wherein the thermal mass is thermally and operatively coupled to IC package by the solderable layer.

44. The system of claim 43, wherein the solderable layer is formed from at least one of the following metals: copper (Cu), gold (Au), nickel (Ni), aluminum (Al), titanium (Ti), tantalum (Ta), silver (Ag) and Platinum (Pt).

45. The system of claim 43, wherein the solderable layer and the metallic thermal mass are made of substantially similar metals.

46. The system of claim 42, wherein the thermal mass is thermally and operatively coupled to the IC package by a thermal adhesive disposed between the thermal mass and the surface of the IC package.

47. The system of claim 42, wherein the thermal mass is thermally coupled to the IC package by a thermal interface material (TIM) layer.

48. The system of claim 47, further comprising a substrate to which the IC package is flip-bonded.

49. The system of claim 48, wherein the thermal mass is operatively coupled to the substrate via a plurality of fasteners.

50. The system of claim 49, further comprising a plurality of standoffs physically coupled to the substrate and to which the plurality of fasteners are physically coupled.

51. A method; comprising:

thermally coupling at least one folded fin microchannel heat exchanger to at least one IC;

passing a working fluid through the at least one folded fin microchannel heat exchanger;

transferring heat produced by the at least one IC via that IC's at least one folded fin microchannel heat exchanger to the working fluid to convert a portion of the working fluid passing through the folded fin microchannels in the at least one folded fin microchannel heat exchanger from a liquid to a vapor phase; and

passing the working fluid exiting the at least one folded fin microchannel heat exchanger through a heat rejecter, wherein the vapor phase portion of the working fluid is converted back to a liquid phase.

52. The method of claim 51, wherein the at least one IC includes a processor IC and at least one additional IC from the following group: a platform chipset IC, a video IC, a memory IC and a co-processor IC.

53. The method of claim 51, wherein the working fluid comprises water.

54. The method of claim 51, wherein the working fluid is passed through the at least one microchannel heat exchanger and the heat rejecter via a electro-osmotic pump.

55. The method of claim 51, wherein the heat rejecter comprises a channeled heat sink including a plurality of hollow heat sink fins having respective channels defined therein.

56. The method of claim 51, wherein the heat rejecter comprises a folded fin microchannel heat exchanger.